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               E TANKYRASE/CN
L1           1 S E3

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     ENTERED AT 07:03:23 ON 04 DEC 2003

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     ENTERED AT 07:03:33 ON 04 DEC 2003
L3         15022 S L2
L4          3823 S L3 AND (ISOLAT? OR PURIF? OR CHARACT?)
L5          2260 S L4 AND (ACTIVI? OR ASSAY)
L6          1357 S L5 AND (INHIBIT? OR MODULAT?)
L7           591 DUP REM L6 (766 DUPLICATES REMOVED)
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1: Eur J Biochem. 1978 Oct;90(2):337-45. Related Articles, Links

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Purification and properties of poly(ADP-ribose) polymerase from pig-thymus nuclei.

Tsopanakis C, Leeson E, Tsopanakis A, Shall S.

The nuclear enzyme poly(ADP-ribose) polymerase has been purified about 9200-fold from pig thymus nuclei with a 46% yield. An aqueous organic solvent system was used for the isolation of the polymerase from nuclei and for its purification by chromatography at sub-zero temperatures. Electrophoretic analysis under both denaturing and non-denaturing conditions revealed a single protein band suggesting that the preparation was homogeneous and that the enzyme is composed of one polypeptide chain. The molecular weight estimated from sodium dodecyl sulphate-/polyacrylamide gel electrophoresis was 63 500 and from gel filtration through columns of Sephadex G-100, 58 000. The enzyme preparation was free from poly(ADP-ribose)-degrading enzymes and from DNA. The purified polymerase showed an absolute requirement for both DNA and histones. The maximal specific activity of the homogeneous preparation measured by the standardized assay, was 20.7 mu mol NAD+ incorporated x min-1 x mg-1 of protein at 37 degree C. Amino-terminal group analysis with dansyl chloride did not reveal a terminal amino acid suggesting that the amino-terminal group may be blocked. In the presence of histones, the Km for NAD+ was 23 micrometer.

PMID: 213276 [PubMed - indexed for MEDLINE]

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1: Eur J Biochem. 1976 Nov 15;70(2):441-6. Related Articles, Links

Entrez PubMed

Purification of poly(ADP-ribose) polymerase from Ehrlich ascites tumor cells by chromatography on DNA-agarose.

Kristensen T, Holtlund J.

PubMed Services

Poly(ADP-ribose) polymerase with a high specific activity was obtained from Ehrlich ascites tumor cells by extraction of nuclei with 175 mM potassium phosphate, followed by chromatography on DNA-agarose. Electrophoretic analysis indicated that the preparation contained two proteins, one of which was shown to catalyze the synthesis of poly(ADP-ribose). As expected from results obtained by other workers, the synthesis was inhibited by nicotinamide and thymidine, and stimulated by DNA. Addition of histones gave inhibition of the synthesis, unless DNA was present in the reaction mixture.

PMID: 188648 [PubMed - indexed for MEDLINE]

Related Resources

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L7 ANSWER 583 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1973:533861 CAPLUS
DOCUMENT NUMBER: 79:133861
TITLE: **Purification** and **characteristics** of **poly(adenosine diphosphate ribose) polymerase** of rat liver
AUTHOR(S): Koide, Samuel S.; Yoshihara, Koichiro
CORPORATE SOURCE: Popul. Counc., Rockefeller Univ., New York, NY, USA
SOURCE: Biochemical Society Transactions (1973), 1(3), 644-8
CODEN: BCSTB5; ISSN: 0300-5127
DOCUMENT TYPE: Journal
LANGUAGE: English

AB DNA, histones, and Mg2+ (10-60mM) were necessary for the full **activity** of nuclear **poly(ADP-ribose) polymerase** which had a pH max. of 8.4, a mol. wt. .apprx. 160,000 daltons, and was **inhibited** (15-20%) by 5mM dithiothreitol and HS(CH2)2OH. The **inhibitory** effect of actinomycin D was possibly by direct interaction with DNA or with the enzyme. Unlike microsomal NAD glycohydrolase, the polymerase required DNA for its NAD hydrolyzing **activity**.

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                    CN
E2            1     TANKO KAOLIN/CN
E3            1 --> TANKYRASE/CN
E4            1     TANKYRASE (HUMAN CLONE FB11 ISOENZYME 2)/CN
E5            1     TANKYRASE (HUMAN TESTIS CLONE TT20)/CN
E6            1     TANKYRASE (HUMAN)/CN
E7            1     TANKYRASE 1 (CHICKEN)/CN
E8            1     TANKYRASE 1-BINDING PROTEIN (HUMAN GENE TAB182)/CN
E9            1     TANKYRASE 2 (HUMAN GENE TNKS2)/CN
E10           1     TANKYRASE H (HUMAN ISOENZYME 1 C-TERMINAL FRAGMENT)/CN
E11           1     TANKYRASE H (HUMAN ISOENZYME 2 C-TERMINAL FRAGMENT)/CN
E12           1     TANKYRASE H (HUMAN ISOFORM 1 C-TERMINAL FRAGMENT)/CN

=> s E3;D
L1            1 TANKYRASE/CN


L1   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2003 ACS on STN
RN   9055-67-8  REGISTRY
CN   Synthetase, poly(adenosine diphosphoribose) (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   Adenine dinucleotide phosphoribosyl transferase
CN   Poly(adenosine 5'-diphosphoribose) synthetase
CN   Poly(adenosine diphosphate ribose) polymerase
CN   Poly(adenosine diphosphate ribose) synthetase
CN   Poly(adenosine diphosphoribose) polymerase
CN   Poly(adenosine diphosphoribose) synthase
CN   Poly(adenosine diphosphoribose) synthetase
CN   Poly(ADP-ribose) phosphodiesterase
CN   Poly(ADP-ribose) polymerase
CN   Poly(ADP-ribose) synthase
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CN Poly(ADP-ribose) synthetase
CN Poly(ADP-ribosyl) polymerase
CN Poly(ADPR) synthetase
CN **Tankyrase**
DR 70712-49-1
MF Unspecified
CI MAN
LC STN Files: ADISNEWS, AGRICOLA, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAPLUS, CHEMCATS, CIN, EMBASE, PROMT, TOXCENTER, USPAT2, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
3156 REFERENCES IN FILE CA (1907 TO DATE)

L7 ANSWER 584 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1973:533904 CAPLUS
DOCUMENT NUMBER: 79:133904
TITLE: Properties of **poly(adenosine diphosphate ribose) polymerase**, poly(adenosine diphosphate ribose) glycohydrolase, and poly(adenosine diphosphate ribose)
AUTHOR(S): Sugimura, Takashi; Yamada, Michiyuki; Miwa, Masanao; Matsushima, Taijiro; Hidaka, Takayoshi; Nagao, Minako; Inui, Naomichi; Takayama, Shozo
CORPORATE SOURCE: Biochem. Div., Natl. Cancer Res. Inst., Tokyo, Japan
SOURCE: Biochemical Society Transactions (1973), 1(3), 642-4
CODEN: BCSTB5; ISSN: 0300-5127
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Enzymes involved in the synthesis and metab. of poly(ADP-ribose) in rat liver nuclei were investigated to det. the importance of poly(ADP-ribose) in the DNA polymerase system. Radioautog. showed that **poly(ADP-ribose) polymerase activity** of **isolated** nuclei was highest during the G2 phase and lowest during the S phase of the cell cycle. Poly(ADP-ribose) was synthesized in vitro by a **purified** polymerase system including DNA, NAD, and histone, and the product was apparently bound to a nucleoprotein complex. Product of long-chain length (H) was synthesized in the presence of DNA and histone, whereas product of short chain-length (L) was synthesized in their absence. L- and H-poly(ADP-ribose), synthesized during incubation of calf thymus nuclei and NAD had chain lengths of 20 and 26 units, resp., and S values of 5 and 12, resp., suggesting that there are conformational differences between these 2 different mol. forms. Poly(ADP-ribose) glycohydrolase, **purified** 150-fold from calf thymus, may regulate the chain of the substrate. Preincubation of a rat liver nuclear prepn. with NAD depressed DNA polymerase **activity**, which was not **inhibited** by poly(ADP-ribose) with endogenous DNA as template.

L7 ANSWER 570 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1976:131871 CAPLUS
DOCUMENT NUMBER: 84:131871
TITLE: **Purification** and properties of calf thymus polyadenosine diphosphate ribose polymerase
AUTHOR(S): Okazaki, H.; Niedergang, C.; Mandel, P.
CORPORATE SOURCE: Inst. Chim. Biol., Fac. Med., Strasbourg, Fr.
SOURCE: FEBS Letters (1976), 62(3), 255-8
CODEN: FEBLAL; ISSN: 0014-5793
DOCUMENT TYPE: Journal
LANGUAGE: English

AB **Poly(adenosine diphosphoribose) polymerase** was **purified** .apprx.540-fold from calf thymus with a yield of 3%. The enzyme required chromatin, dithiothreitol, and MgCl2 for its **activity**. Mn2+ caused a marked activation of enzymic **activity** at 4 mM, whereas Mg2+ and Ca2+ produced a less dramatic stimulation. The pH and temp. optima were 8.8 and 21.5-30.degree., resp. NAD exhibited an apparent Km of 100 .mu.M and nicotinamide and thymidine showed typical noncompetitive **inhibition** curves.

L7 ANSWER 576 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1976:416003 CAPLUS
DOCUMENT NUMBER: 85:16003
TITLE: Partial **purification** and **characterization** of rat liver **poly(ADP-ribose) polymerase**
AUTHOR(S): Yoshihara, Koichiro
CORPORATE SOURCE: Dep. Biochem., Nara Med. Univ., Nara, Japan
SOURCE: Nara Igaku Zasshi (1975), 26(3), 189-97
CODEN: NAIZAM; ISSN: 0469-5550
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

AB An enzyme in rat liver chromatin capable of polymg. the ADP-ribose moiety of NAD was dissocd. from chromosomal DNA by use of CsCl d. gradient centrifugation and partially **purified** by hydroxylapatite and CM-cellulose chromatog. The enzyme, which was **purified** 130-fold, showed an abs. requirement of DNA for reaction. Single-stranded polynucleotides, poly d(A), and poly d(T) did not support enzyme **activity** when they were added sep. in the reaction mixt. in place of DNA. Double-stranded poly d(A).d(T) showed remarkable stimulation of the enzyme reaction. A marked **inhibition** of enzyme **activity** was obsd. following the addn. of poly d(T) into the reaction mixt. supplemented with rat liver DNA. The enzyme also required histones for the reaction. Exogeneous histones stimulated the reaction to 2-3 fold. DTTP, dTMP, and intercalating agents such as actinomycin D, proflavine, and ethidium bromide **inhibited** the enzyme reaction. The enzyme could not release nicotinamide from NAD without DNA.

L7 ANSWER 572 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 374
ACCESSION NUMBER: 1975:589683 CAPLUS
DOCUMENT NUMBER: 83:189683
TITLE: Nicotinamide adenine dinucleotide glycohydrolase from rat liver nuclei. **Isolation** and **characterization** of a new enzyme
AUTHOR(S): Ueda, Kunihiro; Fukushima, Masanori; Okayama, Hiroto; Hayaishi, Osamu
CORPORATE SOURCE: Inst. Chem. Res., Kyoto Univ., Kyoto, Japan
SOURCE: Journal of Biological Chemistry (1975), 250(19), 7541-6
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A new type of NAD glycohydrolase (NADase) was **isolated** from rat liver nuclei. When partially **purified** chromatin was passed through a Sephadex G-200 column in the presence of 1M NaCl, enzyme **activities** catalyzing the liberation of nicotinamide from NAD eluted in 2 peaks. One, which appeared in the void vol. fraction, hydrolyzed the nicotinamide-ribose linkage of NAD to produce nicotinamide and ADP-ribose in stoichiometric amts. This **activity** was not **inhibited** by 5mM nicotinamide. The other, which eluted much later, catalyzed the formation of poly(ADP-ribose) from NAD and was completely **inhibited** by 5mM nicotinamide. The former, NADase, was DNase-insensitive and thermostable, had a pH optimum of 6.5-7, a Km for NAD of 28.mu.M, a Ki for nicotinamide of 80mM, and hydrolyzed NADP as well as NAD. The latter, **poly(ADP-ribose) synthetase**, was sensitive to DNase treatment and heat labile, had a pH optimum of 8-8.5, a Km for NAD of 250.mu.M, a Ki for nicotinamide of 0.5mM, and was strictly specific for NAD. Further, the former NADase lacked transglycosidase **activity**, which has been documented to be a general property of NADases derived from animal tissues. Thus, the NAD-hydrolyzing enzyme newly **isolated** from nuclei is a novel type of mammalian NADase which catalyzes the hydrolytic cleavage of the nicotinamide-ribose linkage of NAD.

L7 ANSWER 589 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1972:1119 CAPLUS
DOCUMENT NUMBER: 76:1119
TITLE: Poly (adenosine diphosphate-ribose). X. Properties of a partially **purified poly (adenosine diphosphate-ribose) polymerase**
AUTHOR(S): Yamada, Michiyuki; Miwa, Masanao; Sugimura, Takashi
CORPORATE SOURCE: Biochem. Div., Natl. Cancer Cent. Res. Inst., Tokyo, Japan
SOURCE: Archives of Biochemistry and Biophysics (1971), 146(2), 579-86
CODEN: ABBIA4; ISSN: 0003-9861
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The enzyme catalyzing the synthesis of poly (adenosine diphosphate-ribose) with an av. of 8 repetitions of ADP-ribose was **purified** 10-fold from rat liver nuclei in 15 yield. The enzyme required DNA, histone, MgCl2, and dithiothreitol for **activity**. DNA could not be replaced by polyanions such as poly (U), poly (A), poly (C), RNA, polyvinyl sulfate, methyl dextran sulfate, or heparin. The enzyme was as active on native DNA as on heat-denatured DNA and on poly [d (A-T)], but less active on poly(dG).poly(dC) and on acid-sol. oligodeoxyribonucleotide. Whole histones of calf thymus or of rat liver, lysine-rich histone of calf thymus, and arginine-rich histone were similarly effective in stimulating the reaction. Casein, bovine serum albumin, cytochrome c, and spermidine did not replace lysine-rich histone. CaCl2 or MnCl2 was as effective for the reaction as MgCl2. Dithiothreitol could be replaced by 2-mercaptoethanol and by glutathione. Polyanions, such as RNA, poly(U), poly(C), poly(A), and polyvinyl sulfate **inhibited** the enzyme **activity**. The mol. wt. of the enzyme was 78,000 by sucrose d. gradient centrifugation.

L7 ANSWER 587 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1972:499139 CAPLUS
DOCUMENT NUMBER: 77:99139
TITLE: Deoxyribonucleic acid synthesis in uteri of immature mouse
AUTHOR(S): Miura, Shoichi; Burzio, L.; Koide, S. S.
CORPORATE SOURCE: Bio-Med. Div., Rockfeller Univ., New York, NY, USA
SOURCE: Hormone and Metabolic Research (1972), 4(4), 273-7
CODEN: HMMRA2; ISSN: 0018-5043
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Nicotinamide (I) and 17.beta.-estradiol (II) were administered to immature mice and **poly-(ADP-ribose) synthetase** (III) **activity** and DNA synthesis of uterine nuclei were measured. II increased III **activity** and DNA synthesis of uterine nuclei. The synthetase **activity** of uterine chromation was also elevated. The incorporation of thymidine-3H into uterine DNA which was stimulated by II was blocked by I administration. Moreover, I added to the incubation medium **inhibited** III **activity** of **isolated** uterine nuclei. The **inhibition** of DNA synthesis induced by I may be related to its effect on III **activity**.

=> d l7 ibib ab 581-591

L7 ANSWER 581 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1976:27311 CAPLUS
DOCUMENT NUMBER: 84:27311
TITLE: **Isolation** and separation of NAD transglycosidase and NAD glycohydrolase from rat liver chromatin
AUTHOR(S): Ueda, Kunihiro; Okayama, Hiroto; Hayaishi, Osamu
CORPORATE SOURCE: Fac. Med., Kyoto Univ., Kyoto, Japan
SOURCE: Poly (ADP-Ribose), Int. Symp. (1974), Meeting Date 1973, 39-43. Editor(s): Harris, Maureen. GPO: Washington, D. C.
CODEN: 31VZAQ
DOCUMENT TYPE: Conference
LANGUAGE: English
AB Two kinds of NADase **activities** were detected in rat liver chromatin: one was assocd. with **poly(ADP-ribose) synthetase** (I) and the other hydrolyzed the nicotinamide-ribose linkage and had no exchange **activity**. I **activity** was measured by incorporation of radioactivity into acid-insol. material using NAD labeled in the adenine moiety. NADase **activity** was measured by the release by nicotinamide-14C from NAD. I showed much greater **inhibition** by nicotinamide and thymidine than NADase. These 2 **activities** were sepd. on Sephadex G-200. The enzyme peak contg. I again showed much greater **inhibition** by nicotinamide, thymidine, cyclic AMP, and ADP-ribose than the NADase peak. It is suggested that both of these enzymes are different from poly(ADP-ribose) glycohydrolase; the names NAD glycohydrolase and NAD transglycosidase are proposed for them.

L7 ANSWER 582 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1973:524540 CAPLUS
DOCUMENT NUMBER: 79:124540
TITLE: Changes in **poly(adenosine diphosphate ribose) polymerase** on stimulation of pig lymphocytes with phytohemagglutinin
AUTHOR(S): Lehmann, Alan R.; Kirk-Bell, Susan; Shall, Sydney
CORPORATE SOURCE: Biochem. Dep., Univ. Sussex, Brighton, UK
SOURCE: Biochemical Society Transactions (1973), 1(3), 694
CODEN: BCSTB5; ISSN: 0300-5127
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The 3-fold increase in **poly(ADP-ribose) polymerase activity** of **isolated** nuclei from phyto-hemagglutinin-stimulated pig lymphocytes, obsd. 48 hr after stimulation, was assocd. with increased chain initiation. The increase was **inhibited** 10-15% when the lymphocytes were cultured with concns. of flourodeoxyuridine, which prevented DNA synthesis. The stimulation of the polymerase **activity** apparently depends on general macromol. synthesis but is independent of concomitant DNA synthesis.

L7 ANSWER 583 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1973:533861 CAPLUS
DOCUMENT NUMBER: 79:133861
TITLE: **Purification** and **characteristics** of **poly(adenosine diphosphate ribose) polymerase** of rat liver
AUTHOR(S): Koide, Samuel S.; Yoshihara, Koichiro
CORPORATE SOURCE: Popul. Counc., Rockefeller Univ., New York, NY, USA

SOURCE: Biochemical Society Transactions (1973), 1(3), 644-8
CODEN: BCSTB5; ISSN: 0300-5127
DOCUMENT TYPE: Journal
LANGUAGE: English
AB DNA, histones, and Mg2+ (10-60mM) were necessary for the full **activity** of nuclear **poly(ADP-ribose) polymerase** which had a pH max. of 8.4, a mol. wt. .apprx. 160,000 daltons, and was **inhibited** (15-20%) by 5mM dithiothreitol and HS (CH2)2OH. The **inhibitory** effect of actinomycin D was possibly by direct interaction with DNA or with the enzyme. Unlike microsomal NAD glycohydrolase, the polymerase required DNA for its NAD hydrolyzing **activity**.

L7 ANSWER 584 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1973:533904 CAPLUS
DOCUMENT NUMBER: 79:133904
TITLE: Properties of **poly(adenosine diphosphate ribose) polymerase**, poly(adenosine diphosphate ribose) glycohydrolase, and poly(adenosine diphosphate ribose)
AUTHOR(S): Sugimura, Takashi; Yamada, Michiyuki; Miwa, Masanao; Matsushima, Taijiro; Hidaka, Takayoshi; Nagao, Minako; Inui, Naomichi; Takayama, Shozo
CORPORATE SOURCE: Biochem. Div., Natl. Cancer Res. Inst., Tokyo, Japan
SOURCE: Biochemical Society Transactions (1973), 1(3), 642-4
CODEN: BCSTB5; ISSN: 0300-5127
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Enzymes involved in the synthesis and metab. of poly(ADP-ribose) in rat liver nuclei were investigated to det. the importance of poly(ADP-ribose) in the DNA polymerase system. Radioautog. showed that **poly(ADP-ribose) polymerase activity** of **isolated** nuclei was highest during the G2 phase and lowest during the S phase of the cell cycle. Poly(ADP-ribose) was synthesized in vitro by a **purified** polymerase system including DNA, NAD, and histone, and the product was apparently bound to a nucleoprotein complex. Product of long-chain length (H) was synthesized in the presence of DNA and histone, whereas product of short chain-length (L) was synthesized in their absence. L- and H-poly(ADP-ribose), synthesized during incubation of calf thymus nuclei and NAD had chain lengths of 20 and 26 units, resp., and S values of 5 and 12, resp., suggesting that there are conformational differences between these 2 different mol. forms. Poly(ADP-ribose) glycohydrolase, **purified** 150-fold from calf thymus, may regulate the chain of the substrate. Preincubation of a rat liver nuclear prepn. with NAD depressed DNA polymerase **activity**, which was not **inhibited** by poly(ADP-ribose) with endogenous DNA as template.

L7 ANSWER 585 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 376
ACCESSION NUMBER: 1974:11816 CAPLUS
DOCUMENT NUMBER: 80:11816
TITLE: **Poly(adenosine diphosphoribose) polymerase** in mammalian nuclei. **Characterization** of the **activity** in mouse fibroblasts (LS cells)
AUTHOR(S): Stone, Peter R.; Shall, Sydney
CORPORATE SOURCE: Biochem. Lab., Univ. Sussex, Brighton, UK
SOURCE: European Journal of Biochemistry (1973), 38(1), 146-52
CODEN: EJBCAI; ISSN: 0014-2956
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The incorporation of NAD-adenine-3H into acid-insol. products by **isolated** LS-cell nuclei contg. **poly(adenosine diphosphoribose) polymerase** had a pH optimum at 8.5 and an apparent temp. optimum at 25.degree.. The optimum Mg2+ concn. was

dependent on the NAD concn., at 1.5.mu.M and 1.5 and 9mM NAD it was 2.0, 3.0, and >20mM Mg2+, resp. Mg2+ could be replaced by Ca2+. Dithiothreitol or mercaptoethanol, .ltoreq.10mM, enhanced the incorporation of NAD. With the optimal conditions the incorporation of NAD was 128 nmoles NAD .times. 5 min-1 .times. mg DNA-1 and the Km was 1.47 .+-. 0.18mM. Nicotinamide and thymidine **inhibited** the incorporation competitively with Ki values of .apprx.14.3 and 32.5.mu.M, resp. The incorporation was not affected by added DNA or poly(U) and ribonuclease but was **inhibited** by .apprx.50% on treatment with deoxyribonuclease. The enzyme system was unstable and the decay was temp.-dependent.

L7 ANSWER 586 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1972:497888 CAPLUS
DOCUMENT NUMBER: 77:97888
TITLE: Nuclear polyadenosine diphosphoribosylation during restricted macromolecular synthesis of HeLa cells
AUTHOR(S): Smulson, Mark E.; Rideau, Cecile
CORPORATE SOURCE: Sch. Med. Dent., Georgetown Univ., Washington, DC, USA
SOURCE: Biochimica et Biophysica Acta (1972), 272(3), 408-16
CODEN: BBACAQ; ISSN: 0006-3002
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The relations of macromol. synthesis of intact HeLa cells was correlated with the ability of nuclei to carry out the ADP ribosylation of nuclear proteins. Selective restriction of DNA replication by hydroxyurea and cytosine arabinoside caused an increase in the rate of enzyme **activity** similar to that obsd. when DNA synthesis ceased during the asynchronous growth cycle of the cells. Restriction of cellular protein synthesis, by either amino acid deprivation or cycloheximide **inhibition** did not affect the specific **activity** of **poly(ADP-ribose) polymerase**. A significant **inhibition** of both the rate of **poly(ADP-ribose) polymerase** and ADP-ribose acceptor **activity** of nuclei and chromatin was noted when RNA synthesis was **inhibited** by actinomycin D only in vivo and not in vitro. Response was dose dependent, with a min. of 1 .mu.g/ml required for **inhibition**. **Inhibition** occurred within 30 min indicating the possibility of a labile species of RNA being involved. **Inhibition** of cellular RNA by cordycepin (3'-deoxyadenosine) also caused **inhibition** of **poly(ADP-ribose) polymerase** in **purified** nuclei. The data further **characterize** the structural nucleic acid components of chromatin necessary for ADP ribosylation of nuclear proteins.

L7 ANSWER 587 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1972:499139 CAPLUS
DOCUMENT NUMBER: 77:99139
TITLE: Deoxyribonucleic acid synthesis in uteri of immature mouse
AUTHOR(S): Miura, Shoichi; Burzio, L.; Koide, S. S.
CORPORATE SOURCE: Bio-Med. Div., Rockfeller Univ., New York, NY, USA
SOURCE: Hormone and Metabolic Research (1972), 4(4), 273-7
CODEN: HMMRA2; ISSN: 0018-5043
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Nicotinamide (I) and 17.beta.-estradiol (II) were administered to immature mice and **poly-(ADP-ribose) synthetase** (III) **activity** and DNA synthesis of uterine nuclei were measured. II increased III **activity** and DNA synthesis of uterine nuclei. The synthetase **activity** of uterine chromation was also elevated. The incorporation of thymidine-3H into uterine DNA which was stimulated by II was blocked by I administration. Moreover, I added to the incubation medium **inhibited** III

activity of **isolated** uterine nuclei. The **inhibition** of DNA synthesis induced by I may be related to its effect on III **activity**.

L7 ANSWER 588 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1971:430426 CAPLUS
DOCUMENT NUMBER: 75:30426
TITLE: Properties of a polyriboadenylate polymerase **isolated** from yeast ribosomes
AUTHOR(S): Bretthauer, Roger K.; Twu, J. S.
CORPORATE SOURCE: Dep. Chem., Univ. Notre Dame, Notre Dame, IN, USA
SOURCE: Biochemistry (1971), 10(9), 1576-82
CODEN: BICHAW; ISSN: 0006-2960
DOCUMENT TYPE: Journal
LANGUAGE: English
AB An enzyme **isolated** from these ribosomes catalyzed a primer-dependent synthesis of short polyadenylate chains from ATP (I). Other ribonucleoside triphosphates (UDP, GTP, and CTP) were not substrates for the polyadenylate polymerase, but when present individually or collectively with I resulted in **inhibition** of AMP polymerization. The reaction required manganese (10-3M) or magnesium (10-2M) for optimum **activity**. Yeast ribosomal RNA was a better primer than synthetic polyribonucleotides; yeast transfer RNA and calf thymus DNA (native or denatured) were inactive. There were indications for the covalent linkage of the polyadenylate to the 3-hydroxyl end of the primer. The chain length of the polymer (10-20 AMP residues) was dependent on time of incubation and primer RNA concn.

L7 ANSWER 589 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1972:1119 CAPLUS
DOCUMENT NUMBER: 76:1119
TITLE: Poly (adenosine diphosphate-ribose). X. Properties of a partially **purified poly** (**adenosine diphosphate-ribose**) **polymerase**
AUTHOR(S): Yamada, Michiyuki; Miwa, Masanao; Sugimura, Takashi
CORPORATE SOURCE: Biochem. Div., Natl. Cancer Cent. Res. Inst., Tokyo, Japan
SOURCE: Archives of Biochemistry and Biophysics (1971), 146(2), 579-86
CODEN: ABBIA4; ISSN: 0003-9861
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The enzyme catalyzing the synthesis of poly (adenosine diphosphate-ribose) with an av. of 8 repetitions of ADP-ribose was **purified** 10-fold from rat liver nuclei in 15 yield. The enzyme required DNA, histone, MgCl2, and dithiothreitol for **activity**. DNA could not be replaced by polyanions such as poly (U), poly (A), poly (C), RNA, polyvinyl sulfate, methyl dextran sulfate, or heparin. The enzyme was as active on native DNA as on heat-denatured DNA and on poly [d (A-T)], but less active on poly(dG).poly(dC) and on acid-sol. oligodeoxyribonucleotide. Whole histones of calf thymus or of rat liver, lysine-rich histone of calf thymus, and arginine-rich histone were similarly effective in stimulating the reaction. Casein, bovine serum albumin, cytochrome c, and spermidine did not replace lysine-rich histone. CaCl2 or MnCl2 was as effective for the reaction as MgCl2. Dithiothreitol could be replaced by 2-mercaptoethanol and by glutathione. Polyanions, such as RNA, poly(U), poly(C), poly(A), and polyvinyl sulfate **inhibited** the enzyme **activity**. The mol. wt. of the enzyme was 78,000 by sucrose d. gradient centrifugation.

L7 ANSWER 590 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1972:43738 CAPLUS
DOCUMENT NUMBER: 76:43738

TITLE: **Poly(adenosine diphosphate ribose) polymerase** in Physarum polycephalum nuclei
AUTHOR(S): Brightwell, M.; Shall, S.
CORPORATE SOURCE: Sch. Biol. Sci., Univ. Sussex, Falmer/Brighton, UK
SOURCE: Biochemical Journal (1971), 125(3), 67p
CODEN: BIJOAK; ISSN: 0264-6021
DOCUMENT TYPE: Journal
LANGUAGE: English

AB **Poly(ADP-ribose) polymerase** (I) was examd. in the nuclei of the slime mold, P. polycephalum, which was grown on 1% Marmite-1% glucose, pH 4.6. The **isolated, purified**, and broken nuclear prepn. possessed I **activity**. The **assay** method measured incorporation of NAD-adenosine-3H into acid-insol. products. The optimum temp. was 14.degree.; the organism was grown at 26.degree.. The optimum pH was 8.2, and Mg2+ was required. Incorporation of NAD continued for .ltoreq.2 hr. The reaction was almost completely **inhibited** by 10 mM nicotinamide. **Isolated** Physarum nuclei showed increasing degrees of **inhibition** of subsequent thymidine triphosphate incorporation into DNA after incubation in 0-4 mM NAD for 30 min.

L7 ANSWER 591 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1968:424513 CAPLUS
DOCUMENT NUMBER: 69:24513
TITLE: Poly[adenosine diphosphate ribose] synthesis associated with chromatin
AUTHOR(S): Ueda, Kunihiro; Reeder, Ronald H.; Honjo, Tasuku; Nishizuka, Yasutomi; Hayaishi, Osamu
CORPORATE SOURCE: Fac. Med., Kyoto Univ., Kyoto, Japan
SOURCE: Biochemical and Biophysical Research Communications (1968), 31(3), 379-85
CODEN: BBRCA9; ISSN: 0006-291X
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Chromatin (I) prepd. from **isolated** rat liver nuclei contained 80-90% of the poly(adenosine diphosphate ribose) (II) polymerase **activity** present in the original nuclei. I contained DNA and protein in a ratio of 1:1.25. The soly. pattern in a salt soln. was similar to that with calf thymus DNA-protein. Protein was dissocd. from DNA by gel filtration in the presence of high (NH4)2SO4 concns. The void vol., consisting mainly of DNA, contained II-synthesizing **activity**. Even with the addn. of rat liver DNA, the **activity** was not found in the dissocd. protein fractions. An assocn. of II polymerase **activity** with DNA was found on equil. Cs2SO4 d. gradient centrifugation of I. Approx. 70% of the protein was dissocd. from DNA; polymerase **activity** occurred in a minor part of the protein bound to DNA. Low concns. (0.1-0.5M) of (NH4)2SO4 markedly depressed II synthesis; RNA synthesis markedly increased. At higher concns., II synthesis increased and was max. at 1.7M, where it was 40% as active as in the salt-free state. II synthesis was assayed in the presence of NAD-(adenine-8)-14C. Radioactivity incorporated into the acid-insol. material rapidly disappeared during incubation in the absence of (NH4)2SO4. (NH4)2SO4 > 0.1M completely **inhibited** the disappearance of acid-insol. radioactivity. The final amt. of radioactivity incorporated into acid-insol. material increased with higher concns. of (NH4)2SO4 (0.5-2.1M). The product formed in the presence of high concns. of salt had a larger mol. size than that formed in lower concns. of salt. The product showed an assocn. with the DNA fraction. It dissocd. from DNA in a Cs2SO4 d. gradient, implying that the binding was not covalent. Na dodecyl sulfate or proteinase promoted the release of II from DNA.

=> d l7 ibib ab 570-580

L7 ANSWER 570 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1976:131871 CAPLUS
DOCUMENT NUMBER: 84:131871
TITLE: **Purification** and properties of calf thymus polyadenosine diphosphate ribose polymerase
AUTHOR(S): Okazaki, H.; Niedergang, C.; Mandel, P.
CORPORATE SOURCE: Inst. Chim. Biol., Fac. Med., Strasbourg, Fr.
SOURCE: FEBS Letters (1976), 62(3), 255-8
CODEN: FEBLAL; ISSN: 0014-5793
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Poly(adenosine diphosphoribose)** **polymerase** was **purified** .apprx.540-fold from calf thymus with a yield of 3%. The enzyme required chromatin, dithiothreitol, and MgCl2 for its **activity**. Mn2+ caused a marked activation of enzymic **activity** at 4 mM, whereas Mg2+ and Ca2+ produced a less dramatic stimulation. The pH and temp. optima were 8.8 and 21.5-30.degree., resp. NAD exhibited an apparent Km of 100 .mu.M and nicotinamide and thymidine showed typical noncompetitive **inhibition** curves.

L7 ANSWER 571 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1977:26242 CAPLUS
DOCUMENT NUMBER: 86:26242
TITLE: Poly ADP-ribosylation of DNA-dependent RNA polymerase I from quail oviduct. Dependence on progesterone stimulation
AUTHOR(S): Mueller, Werner E. G.; Zahn, Rudolf K.
CORPORATE SOURCE: Inst. Physiol. Chem., Univ. Mainz, Mainz, Fed. Rep. Ger.
SOURCE: Molecular and Cellular Biochemistry (1976), 12(3), 147-59
CODEN: MCBIB8; ISSN: 0300-8177
DOCUMENT TYPE: Journal
LANGUAGE: English
AB In female quail (Coturnix coturnix japonica), progesterone (I) [57-83-0] administration caused an increase of the **activity** of RNA polymerase I [9014-24-8] and RNA polymerase II in **isolated** oviduct nuclei. This increase was accompanied by marked decrease of the sp. **activity** of **poly(ADP-ribose)** **polymerase** [**9055-67-8**]. After in vitro ADP-ribosylation of nuclear proteins the template capacity of chromatin for exogenous RNA synthesis (with E. coli DNA-dependent RNA polymerase) as well as for endogenous RNA synthesis with DNA-dependent RNA polymerase II was not affected, whereas the capacity for RNA synthesis mediated by endogenous DNA-dependent RNA polymerase I was apparently **inhibited** after ADP ribosylation. Considerable amts. of poly(ADP-ribose) synthesized by **poly(ADP-ribose)polymerase** in **isolated** nuclei was linked with RNA polymerase I. The rate of synthesis of poly(ADP-ribose) was dependent on the incubation temp. (optimum at 25.degree.) and was **inhibited** by the sp. **inhibitors** of **poly(ADP-ribose)** **polymerase**, nicotinamide, thymidine, and formycin B. ADP-ribosylated RNA polymerase I was **purified** 550-fold with respect to the nuclear ext., corresponding to a 4000-fold **purifn** . from the whole cell homogenate. The ratio between poly(ADP-ribose), formed during preincubation of nuclei with NAD, and polymerase I remained const. during the **purifn**. procedures. The extent of ADP-ribosylation of RNA polymerase I decreased during gene expression. Apparently, poly ADP-ribosylation of this enzyme is one of the regulatory mechanisms by which specificity of DNA transcription is achieved.

L7 ANSWER 572 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 374
ACCESSION NUMBER: 1975:589683 CAPLUS
DOCUMENT NUMBER: 83:189683
TITLE: Nicotinamide adenine dinucleotide glycohydrolase from rat liver nuclei. **Isolation** and **characterization** of a new enzyme
AUTHOR(S): Ueda, Kunihiro; Fukushima, Masanori; Okayama, Hiroto; Hayaishi, Osamu
CORPORATE SOURCE: Inst. Chem. Res., Kyoto Univ., Kyoto, Japan
SOURCE: Journal of Biological Chemistry (1975), 250(19), 7541-6
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new type of NAD glycohydrolase (NADase) was **isolated** from rat liver nuclei. When partially **purified** chromatin was passed through a Sephadex G-200 column in the presence of 1M NaCl, enzyme **activities** catalyzing the liberation of nicotinamide from NAD eluted in 2 peaks. One, which appeared in the void vol. fraction, hydrolyzed the nicotinamide-ribose linkage of NAD to produce nicotinamide and ADP-ribose in stoichiometric amts. This **activity** was not **inhibited** by 5mM nicotinamide. The other, which eluted much later, catalyzed the formation of poly(ADP-ribose) from NAD and was completely **inhibited** by 5mM nicotinamide. The former, NADase, was DNase-insensitive and thermostable, had a pH optimum of 6.5-7, a Km for NAD of 28.mu.M, a Ki for nicotinamide of 80mM, and hydrolyzed NADP as well as NAD. The latter, **poly(ADP-ribose) synthetase**, was sensitive to DNase treatment and heat labile, had a pH optimum of 8-8.5, a Km for NAD of 250.mu.M, a Ki for nicotinamide of 0.5mM, and was strictly specific for NAD. Further, the former NADase lacked transglycosidase **activity**, which has been documented to be a general property of NADases derived from animal tissues. Thus, the NAD-hydrolyzing enzyme newly **isolated** from nuclei is a novel type of mammalian NADase which catalyzes the hydrolytic cleavage of the nicotinamide-ribose linkage of NAD.

L7 ANSWER 573 OF 591 EMBASE COPYRIGHT 2003 ELSEVIER INC. ALL RIGHTS RESERVED. on STN
ACCESSION NUMBER: 76117802 EMBASE
DOCUMENT NUMBER: 1976117802
TITLE: Mode of action of 9 .beta. D arabinofuranosyladenine on the synthesis of DNA, RNA, and protein in vivo and in vitro.
AUTHOR: Mueller W.E.G.; Rohde H.J.; Beyer R.; et al.
CORPORATE SOURCE: Inst. Physiol. Chem., Univ. Mainz, Germany
SOURCE: Cancer Research, (1975) 35/8 (2160-2168).
CODEN: CNREA8
DOCUMENT TYPE: Journal
FILE SEGMENT: 037 Drug Literature Index
016 Cancer
029 Clinical Biochemistry
030 Pharmacology
023 Nuclear Medicine
LANGUAGE: English
AB The influence of 9 .beta. (D) arabinofuranosyladenine (ara A) and its 5' triphosphate derivative on programmed synthesis was tested with an intact cell system as well as with **isolated** enzyme systems. The effect of ara A was tested in mouse lymphoma cells (L5178Y). The compound reduces cell proliferation in low concentration by cytostasis; under high ara A concentrations the cells are lethally affected. Studies on the incorporation of radioactive precursors into DNA, RNA, and protein showed that ara A selectively **inhibits** DNA synthesis. Formation of a polysome complex is not affected by ara A. [3H] ara A is incorporated into DNA in an intact cell system; 1 molecule of ara A is incorporated per 8000 molecules of deoxyadenosine. Most of the ara A molecules appeared to be in

internucleotide linkages. Incorporation of ara A into RNA could not be detected. 9 .beta. (D) Arabinofuranosyladenine 5' triphosphate (ara ATP) does not reduce the incorporation rate of the following enzymes, **isolated** from quail oviducts: DNA dependent RNA polymerases I and II, polyadenylic acid polymerase, and **poly** (**adenosine diphosphate ribose**) **polymerase**. The compound was found to **inhibit** DNA synthesis catalyzed by DNA polymerases **isolated** from quail oviducts and from oncogenic RNA viruses (Rous sarcoma viruses). All the enzymes tested were **inhibited** by ara ATP in a competitive way with respect to deoxyadenosine 5' triphosphate. The highest affinity of ara ATP, i.e., the highest **inhibitory** potency of the drug, was found in the **assays** with the eukaryotic low molecular DNA dependent DNA polymerase. The influence on the eukaryotic high molecular DNA dependent DNA polymerase was a little less. Compared to the eukaryotic DNA polymerases, the viral enzymes (RNA directed DNA polymerase and DNA directed DNA polymerase) are affected to a smaller extent by ara ATP. No effects of ara A and ara ATP are observed in a protein synthesizing, cell free system **isolated** from L5178Y cells.

L7 ANSWER 574 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 375
ACCESSION NUMBER: 1975:574536 CAPLUS
DOCUMENT NUMBER: 83:174536
TITLE: Cytoplasmic **poly(ADP-ribose) polymerase** during HeLa cell cycle
AUTHOR(S): Roberts, Jerry H.; Stark, Patricia; Giri, Chandrakant P.; Smulson, Mark
CORPORATE SOURCE: Sch. Med., Georgetown Univ., Washington, DC, USA
SOURCE: Archives of Biochemistry and Biophysics (1975), 171(1), 305-15
CODEN: ABBIA4; ISSN: 0003-9861
DOCUMENT TYPE: Journal
LANGUAGE: English
AB **Poly(ADP-ribose) polymerase** was found in the cytoplasm of HeLa cells. Enzyme **activity** was stimulated >30-fold by the addn. of both DNA and histones. These 2 macromols. were absolutely necessary for maximal **activity** and they acted in a synergistic manner. The product of the reaction was **characterized** as poly(ADP-ribose) by its acid insoly., its insensitivity to hydrolysis by DNase, RNase, spleen phosphodiesterase, or Pronase, and by release of 5'-AMP and 2'-(5''-phosphoribosyl)-5'-AMP by incubation with snake venom phosphodiesterase. A covalent attachment between histone F1 and poly(ADP-ribose) was established by using the cytoplasmic enzyme. The enzyme was primarily assocd. with ribosomes, both free ribosomes and those in polysomes. **Inhibition** of protein synthesis in the intact cell reduced the level of **activity** in the cytoplasm. The enzyme was removed from the ribosomes by centrifugation through sucrose gradients contg. 0.6M NH4Cl. A relation between this enzyme and DNA replication is suggested by the fact that the specific **activity** in the cytoplasm parallels the rate of DNA synthesis during the HeLa cell cycle.

L7 ANSWER 575 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1975:108113 CAPLUS
DOCUMENT NUMBER: 82:108113
TITLE: Evidence for adenosine diphosphate ribosylation of (calcium-magnesium ion)-dependent endonuclease
AUTHOR(S): Yoshihara, Koichiro; Tanigawa, Yoshinori; Burzio, L.; Koide, S. S.
CORPORATE SOURCE: Biomed. Div., Rockefeller Univ., New York, NY, USA
SOURCE: Proceedings of the National Academy of Sciences of the United States of America (1975), 72(1), 289-93
CODEN: PNASA6; ISSN: 0027-8424

DOCUMENT TYPE: Journal
LANGUAGE: English
AB The mol. basis for the **inhibition** of the Ca2+,Mg2+-dependent endonuclease resulting from the formation of poly(adenosine diphosphate ribose) (ADP-Rib) was studied in a simplified system contg. **purified** rat liver or bull semen endonuclease, **purified** rat liver poly(ADP-Rib) synthetase, NAD, and DNA. Poly(ADP-Rib) synthetase **activity** was stimulated when Ca2+,Mg2+-dependent endonuclease was added to the reaction mixt. in place of histones, suggesting that the endonuclease can act as an acceptor for ADP-Rib. Evidence was presented to show that the ADP-Rib moiety of NAD was incorporated into the endonuclease fraction. The ADP-Rib bound to the endonuclease was in the form of monomers and oligomers and not long chain polymers. The present results suggest that the Ca2+,Mg2+-dependent endonuclease was ADP-ribosylated when the endonuclease was incubated with poly(ADP-Rib) synthetase and NAD.

L7 ANSWER 576 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1976:416003 CAPLUS
DOCUMENT NUMBER: 85:16003
TITLE: Partial **purification** and **characterization** of rat liver **poly(ADP-ribose) polymerase**
AUTHOR(S): Yoshihara, Koichiro
CORPORATE SOURCE: Dep. Biochem., Nara Med. Univ., Nara, Japan
SOURCE: Nara Igaku Zasshi (1975), 26(3), 189-97
CODEN: NAIZAM; ISSN: 0469-5550
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
AB An enzyme in rat liver chromatin capable of polymg. the ADP-ribose moiety of NAD was dissocd. from chromosomal DNA by use of CsCl d. gradient centrifugation and partially **purified** by hydroxylapatite and CM-cellulose chromatog. The enzyme, which was **purified** 130-fold, showed an abs. requirement of DNA for reaction. Single-stranded polynucleotides, poly d(A), and poly d(T) did not support enzyme **activity** when they were added sep. in the reaction mixt. in place of DNA. Double-stranded poly d(A).d(T) showed remarkable stimulation of the enzyme reaction. A marked **inhibition** of enzyme **activity** was obsd. following the addn. of poly d(T) into the reaction mixt. supplemented with rat liver DNA. The enzyme also required histones for the reaction. Exogeneous histones stimulated the reaction to 2-3 fold. DTTP, dTMP, and intercalating agents such as actinomycin D, proflavine, and ethidium bromide **inhibited** the enzyme reaction. The enzyme could not release nicotinamide from NAD without DNA.

L7 ANSWER 577 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1975:439248 CAPLUS
DOCUMENT NUMBER: 83:39248
TITLE: **Poly(adenosine diphosphate ribose) polymerase** in Physarum polycephalum
AUTHOR(S): Brightwell, Malcolm D.; Leech, Chris E.; O'Farrell, Minnie K.; Whish, William J. D.; Shall, Sydney
CORPORATE SOURCE: Biochem. Lab., Univ. Sussex, Brighton, UK
SOURCE: Biochemical Journal (1975), 147(1), 119-29
CODEN: BIJOAK; ISSN: 0264-6021
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Under optimum conditions (pH 8.2 and 15mM Mg2+) the Kmat 15.degree. was 0.28mM for NAD-(adenine-3H) incorporation into poly(ADP-ribose) by **isolated** nuclei of P. polycephalum. Incorporation was stimulated by exogenous DNA (by .apprx.100%), 2-mercaptoethanol, and dithiothreitol, and **inhibited** by nicotinamide (Ki 5.7.mu.M) or preincubation of the nuclei with DNase. The enzyme itself was unstable at 0.degree. and

15.degree. in the absence of dithiothreitol. Enzyme **activity** per nucleus fell by .apprx.50% in early S phase then rose to its premitotic value in late S phase.

L7 ANSWER 578 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1974:131072 CAPLUS
DOCUMENT NUMBER: 80:131072
TITLE: Synthesis of polyadenosine diphosphate ribose by **isolated** nuclei of swine aortic tissue
AUTHOR(S): Janakidevi, K.; Koh, Choon
CORPORATE SOURCE: Dep. Pathol., Albany Med. Coll., Albany, NY, USA
SOURCE: Biochemistry (1974), 13(7), 1327-30
CODEN: BICHAW; ISSN: 0006-2960
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Properties of nuclear polyadenosine diphosphoribose (poly(ADPR)-synthesizing enzyme from intima plus media of swine aortic tissue are described. The synthesis of poly(ADPR) by **isolated** nuclei was stimulated by the addn. of various polynucleotides, the most effective being the synthetic polymer, poly[d(A-T)], and of native calf thymus DNA. Although high concns. of pancreatic DNase **inhibited** this reaction, lower nuclease concns. exerted a significant stimulatory effect on the incorporation of NAD. The DNase treatment or addn. of exogenous polynucleotides appeared to effect the elongation of the poly(ADPR). The **inhibition** of the stimulated **activity** by histones, specifically the lysine-rich histones, seems to indicate that regions of DNA rich in adenine and thymine are essential for the **activity**. A role for poly(ADPR) polymerase in regulating DNA synthesis could be envisaged as involving competition for DNA.

L7 ANSWER 579 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1974:565422 CAPLUS
DOCUMENT NUMBER: 81:165422
TITLE: **Inhibition** of rat liver calcium(2+), magnesium(2+)-dependent endonuclease **activity** by nicotinamide adenine dinucleotide and **poly(adenosine diphosphate ribose) synthetase**
AUTHOR(S): Yoshihara, Koichiro; Tanigawa, Yoshinori; Koide, S. S.
CORPORATE SOURCE: Popul. Counc., Rockefeller Univ., New York, NY, USA
SOURCE: Biochemical and Biophysical Research Communications (1974), 59(2), 658-65
CODEN: BBRCA9; ISSN: 0006-291X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Incubation of rat liver chromatin with NAD resulted in an **inhibition** of the Ca2+,Mg2+-dependent endonuclease while the Mg2+-dependent endonuclease was not affected. To establish that the endonuclease was blocked directly by ADP ribosylation, **purified** enzymes were used in the reaction mixt. The following ingredients were required in order to demonstrate the **inhibitory** effect; partially **purified** Ca2+,Mg2+-dependent endonuclease, **purified poly(adenosine diphosphate ribose) synthetase**, NAD, and DNA.

L7 ANSWER 580 OF 591 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1975:53256 CAPLUS
DOCUMENT NUMBER: 82:53256
TITLE: Solubilization and properties of **poly(ADP-ribose) polymerases** from bovine spleen and Ehrlich ascites cells
AUTHOR(S): Dungan, Stephen M.; Berger, Barry; Zervoudakis, Ronald J.; Dietrich, Laroy S.
CORPORATE SOURCE: Sch. Med., Univ. Miami, Miami, FL, USA

SOURCE: Biochimica et Biophysica Acta (1974), 374(2), 220-37
CODEN: BBACAQ; ISSN: 0006-3002
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A very gentle procedure for solubilizing poly[2'-(5''-phosphoribosyl)-5'-AMP] (**poly(ADP-ribose)**) **polymerase** from Ehrlich ascites cells is described. Incubation of nuclei in 0.25M sucrose contg. 0.02% NaN3 for a period of 7-12 days followed by centrifugation at 105,000 g for 1 hr yielded 60-80% of the **activity** in the supernatant fraction. Sol. and particulate **poly(ADP-ribose) polymerases** from Ehrlich ascites cells and bovine spleen were compared with respect to stability, pH and cation requirements, and response to various chemotherapeutic agents and polyamines. Major differences in the properties of the sol. and particulate enzymes from spleen suggested the presence of multiple **poly(ADP-ribose) polymerases**; exhaustive extn. with 0.5M NaCl released <1/2 the total **activity** in spleen, the pH optimum of the particulate enzyme was .gtoreq.10, and the **activity** of the insol. enzymes showed little dependence on the concns. of Mg2+ or Na+. Sol. enzymes from both spleen and ascites had similar time-course **activity** profiles and identical pH optima (8.6); also, both **activities** were stimulated by Mg2+. At its optimal Mg2+ concn. (20 mM), the sol. ascites **poly(ADP-ribose) polymerase** was quant. pptd. Both spleen and ascites sol. **activities** were sensitive to the known **inhibitors** and to histones, polyamines, and other polycations. The response of the ascites enzyme to histones was dependent upon MgCl2.